What It Means to Win the War in the Air

Air Department Needed to Coordinate Effort and Stupendous Task Could Be Done

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By AGNES C. LAUT.

WITHIN a very short time the Hughes report on the airplane situation and the Senate commitee's findings on the delayed production of planes will both be in the hands of the President. Their conclusions will doubtless receive the consideration they deserve from the proper authorities, but they do not very much concern the public. It is all of a page that has been passed and turned over. The three questions that concern the public are:

What is the actual production of war planes now?

What is the actual need of planes to win the war?

And of the actual need, what is it practical and possible for us to produce?

Answer these questions satisfactorily now and the public will readily forgive and forget the mistakes of the past.

A hundred thousand airplanes would win the war—if not at the drop of the hat, then at the drop of a bomb. They would drive the Germans out of their rat hole trenches. They would drive them behind the Rhine. They would start a run on Berlin.

More than that: even at a 60 per cent. sacrifice of airmen they would save the millions of land fighters, whose courage is as powerless against the long range gun as a child's hand under a sledgehammer. All these are truisms of the war acknowledged to ourselves daily and many times a day for the last year.

What, then, is the actual production of airplanes in this country now?

What We Are Doing Just Now.

At the time of writing—the end of July—as far as the figures can be gathered from manufacturers and confirmed by members of the Aeronautic Club, we are producing 500 Liberty motors a month, or 6,000 a year. We are producing from 25 to 50 Havilands a week, or a maximum of 2,500 a year. We are turning out 400 training planes a week, or 20,000 a year. We are sending out 500 Hispano-Suiza engines a month, or 6,000 a year. You can add the figures for yourself, not counting the training planes, and see how near we are coming to the 100,000 airplanes to win the war.

But when you say we need 100,000 airplanes to win the war it means something very much bigger than 100,000 airplanes and 100,000 airmen. By actual experience in the present war, it has been found that to send and keep 5,000 aviators constantly above the firing line it is necessary to replace 40 per cent. of the men each month; that is, there must be a replacement of 24,000 men a year, on a basis of 5,000 fighters. Figure it out on a basis of 100,000 fighters, and the air programme to win the war looms as big as a navy programme.

For every flier there must be two training machines. Bigger yet! If for 5,000 fighters you need 24,000 replacement men a year, you need 48,000 training machines for those 24,000 replacement men. But the fighting machines must themselves be replaced 100 per cent. a month; so on a basis of 5,000 fighting machines you need 60,000 fighting machines a year—all this, note, on the basis of only 5,000 fighters constantly afield.

"I should say," declared Henry Woodhouse, author of "Military Aeronautics," "that to keep 5,000 fighters daily and hourly above the firing line, we should produce 118,000 air machines a year and 300,000 or 400,000 motor engines."

If that total is needed for 5,000 fighters figure twenty times that for 100,000 fighters, and you realize what the phrase "100,000 airplanes to win the war" means.

Many Think 5,000 Planes Enough.

And yet there are those authorities who think that only 5,000 fighting machines hourly, daily, weekly, monthly, above the enemy lines could win the war. This, of course, takes full account of days of wind and fogs, when both men and machines would have to go off the map. But on the basis of 5,000 constant fighters representing a total of 118,000 machines required, figure the costs:

The war is now costing $500,000,000 a day and not less than ten million casualties a year to all the nations engaged.

Of the 118,000 machines needed to sustain 5,000 constant fighters, 20 per cent. would be single motored, 30 per cent. be double motored, 50 per cent. would be three and four motored. The big machines would cost $25,000, the small machines $10,000, with $1,500 extra for instruments and ordnance. Or average the machines at $20,000 each. What is a total of $2,000,000,000 plus to win the war against a waste of $150,000,000,000 and ten million men a year to keep the war dragging on an endless stalemate?

Go back and read over these figures carefully again. And if you want a few more, contemplate the additional facts.

There are in a fighting airplane 4,000 different parts, each of which needs as fine and delicate adjustment as a camera lens or compass needle; and you can't produce this kind of thing by shaking a stick at it and roaring like Mr. Bumble. It takes the finest and best material and the finest and best finger tips working the material and the finest and best brains and eyes behind the finger tips.

Why Rigid Tests Are Necessary.

Early in the year, when the tally of deaths in the training planes began to total alarmingly large, a bureau of skilled metallurgists and chemists was established to test every metal going into the engines or airplanes. Why? Because only a 2 per cent. variation in one amalgam of steel for the high powered engines meant a dead airman as soon as he got into high speed at altitudes above 10,000 feet.

The same thing was done for airplane fuels to insure a gasolene evaporation at a low point. And please recall that the airplane as a war arm is less than two years old. It was only toward the end of 1916 that the world awakened to the fact that the only way to win the war without turning half of humanity into a shambles was by supremacy in the air.

It now becomes apparent why the demand for an air ministry or aerial secretary and bureau distinct from army and navy has split the official world into two great camps. Those demanding an air ministry or aerial secretary, as in England, men like Senator Reed and Harry New, who are backing the bill introduced on August 1, see in the airplane not a branch of the army nor a branch of the navy but a great air army in itself, a great air fleet, which shall not only supplant but may supersede both army and navy. They see the airplane as one of the great triumvirate—army, navy, air.

Those opposed to an air ministry see in the airplane only the eyes and scouts and sharpshooters of the fighter on the land and the fighters on the sea. If the war goes well as things are, the standpats win; but if when No Man's Land has been crossed progress stalls again, the demand for an air army and an air ministry will gather impetus.

The story of how the failure of last year's programme occurred will not make as spectacular reading as graft hunters would like to find. The whole airplane development is in a stage of swift transition, when the inventions of yesterday become the antique junk of to-day. Without anticipating Mr. Hughes's report, here practically is what happened:

The manufacturers were going ahead full steam up, according to blueprints and specifications. It may be said right here that there are about 2,000 blueprints and specifications to an airplane. Presto! A big German machine is brought down behind the allied lines. It is seized before it can be destroyed by the pilot. Some new wrinkle is found in the mounting of a gun, in cam or shaft or engine.

Is the new point superior to our specifications? Wouldn't, in fact, this new wrinkle as to fuel or wings or engine or gun practically send our machine to the scrap heap if we went out against the enemy without protection against these new inventions?

News of the new wrinkle is flashed to the Airplane Board. Two thousand drawings and specifications for American machines are junked. A wire goes out to the manufacturers changing specifications, and perhaps sending to the scrap heap 100,000 crank shafts, 10,000 cam shafts, cylinder heads, bearings and small parts uncounted.

One Machine Needs 2,000 Items.

The manufacturers stop with a yell of rage, swear and hurry to Washington. New specifications! A new start; and the process repeated all over again!

In 1917 we really went through with airplanes what the munition and ordnance manufacturers experienced in 1915—pretty nearly daily changes and heart sickening delays. But the ordnance manufacturers finally got their gauges and standards and got into their war stride, and the airplane manufacturers are doing so now. It may be added that the airplane manufacturers themselves think there would have been less changing and junking and scrapping and wasteful spending if airplane men had been on the Aircraft Production Board.

As to the Liberty motor, the Hughes report will deal with that. It was badly press agented. It was played up in the press for a part for which it was unsuited, and then it took bitter experience to bring the Government round to the point of acknowledging its pet's deficiencies. It is a good machine for its own specialty, but it is not a machine for universal use.

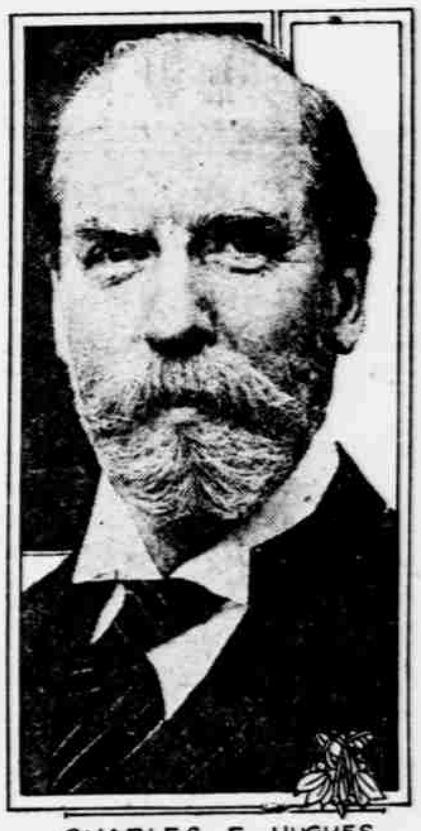
Again, big airmen think the blunders would not have been made if practical airmen had had the handling of air production, men like Curtiss or Houston or Wright or Martin, even though some of these great specialists are at daggers drawn technically. They know their job, and they know what can and cannot be done with a plane, and they could at least have avoided the errors of beginners.

On the Aircraft Production Board as first constituted was not one single practical airman. The Aircraft Production Board members were enthusiasts, but enthusiasm, like Bryan's oratorical army, doesn't win this war, or the Germans would have won out long ago. But this, too, is past history, and rounds back to the plane manufacturers' demand for an air ministry.

Pooling of Patents a Good Step.

The cross-licensing pool of all patents, which threatened confusion to airplane production at the beginning of the war, is not likely to play a very large part in either official report. When the war began one of the big airplane companies had possession of about 60 per cent. of all patents. The other big company had 30 per cent., and the little independents had about 10 per cent. of the patents.

When it became obvious that airplane production on a huge scale must be stimulated it also became obvious that it was going to be hard on the beginners to pay heavy royalties on patents to rival companies, and the Government suggested that all patents be pooled in one hat, with royalties going out to each patent owner pro rata for the patents so controlled. If I remember correctly, this wise settlement came out of a suggestion from Director Stratton of the bureau of standards. Anyway, the pool of patents avoided all litigation and gave all manufacturers a chance to go ahead without injunction or hindrance.



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Another of the amazing developments in airplanes to win the war is the quiet certainty among the biggest airmen that the air army will ultimately cross the Atlantic to the field of battle on its own wings. It takes 220 tons of ship space to convey across the Atlantic a big machine. Also it takes a ship's crew ten days of time.

By airplane the trip could be made in thirty hours with a crew of from two to eighteen. Aviators now fly from London to Cairo with only three stops. Always these air men, with their heads literally in the clouds and their eyes with a vision as from a great mountain, are seeing and foreseeing things to make mortals with their feet on the ground gasp. And yet airplane development is at a pace to make aviators themselves gasp.

Now go back to the question the public wants to have answered:

What is the actual production of war planes now?

You have the latest figures. Total them for yourself.

What is the actual need of planes to win the war?

Not less than 5,000 constant fighters, which means 118,000 machines a year.

Are we producing them?

We are not.

Can we do it?

Assuredly we can, as easily as we produce 100,000 motor cars.

Why, then, don't we do it?

Because no coordinating head has called a conference to do it.

Advice From Henry Woodhouse.

In his testimony before the Senate committee Henry Woodhouse gave this advice:

"Call a conference of all the big airplane specialists and manufacturers. We want 118,000 fighting planes in one year. We will have 114,000 army and navy fighting aviators ready. Will you have the machines ready? Let us take a round robin of how many each of you can produce. This is short so many thousand machines a factory. We must assign to you so many more machines to produce or find so many more factories to produce them.

"Here is our programme. To live up to it what must you have? More steel, more spruce, more skilled hands! Good! Call in the steel men, the spruce men, the labor leaders! We want and shall commandeer so much more steel, so much more spruce, so many more skilled workmen!

"Now, all wants supplied! Go back and speed up! The mark is 118,000 machines! For lack of material France and England are producing only 40 per cent. of the airplanes they need. Germany is producing 100 per cent. of what she is capable. If you count piano factories, motor boat factories, idle garages, &c., we are producing less than 1 per cent. of what we could do."

Do you want to win the war by supremacy in the air? There is only one way to do it, and that is do it and stop talking about it; and whatever the Hughes report says and whatever the Senate committee report says, the public is behind that demand with its pocketbook; but it wants airplanes, not hot air explains.